Before the
Federal Communications Commission
Washington DC 20554

In the Matter of	)	
	)	
	)	
Unlicensed Use of the 6 GHz Band	)	ET Docket No. 18-295
	)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz	)	GN Docket No. 17-183
	)	
	)	
	)	

EX PARTE COMMENTS OF THE
NATIONAL SPECTRUM MANAGEMENT ASSOCIATION

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October 2, 2019

EX PARTE COMMENTS OF THE

NATIONAL SPECTRUM MANAGEMENT ASSOCIATION

The National Spectrum Management Association ("NSMA")[1] submits these Ex Parte comments regarding the above captioned Notice of Proposed Rulemaking (NPRM). This filing supplements the NSMA Comments already on file.[2]

INTRODUCTION

In this NPRM[3] the Commission proposes rules that will introduce unlicensed use in portions of the 1200 megahertz of spectrum in the 5.925-7.125 GHz (6 GHz) bands. Under this concept, relatively high-powered unlicensed devices would be permitted to operate in portions of two sub-bands (totaling 850 megahertz of spectrum), subject to their use of an equipment-based frequency coordination mechanism that would prevent the unlicensed devices from transmitting on frequencies where such transmissions could cause harmful interference to incumbent services. Lower powered indoor operations would be permitted to operate in two other sub-bands (totaling 350 megahertz of spectrum) unencumbered by frequency coordination.

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[1] The NSMA is a voluntary association of individuals involved in the spectrum management profession including service providers, manufacturers, frequency coordinators, engineers and consultants. NSMA's goal is to promote rational spectrum policy through consensus views formulated by representatives of diverse segments of the wireless industry.

[2] Comments of NSMA filed February 15, 2019.

[3] Notice of Proposed Rulemaking (NPRM), *Unlicensed Use of the 6 GHz Band*, ER Docket 18-295 (FCC 18-147), <https://docs.fcc.gov/public/attachments/FCC-18-147A1.pdf>, document referenced as "FCC."

FIXED SERVICE DATABASE ENHANCEMENT or AUDIT

An enhancement to the fixed service ULS database (or the release of an audit or functionally equivalent study) by the FCC of the existing 6 GHz networks is recommended. The spectrum management principles[4] rooted in a request for such information being made available are many, and include but are not limited to the need to assess: electromagnetic compatibility, technical standards (including the ability of currently and prospectively deployed incumbent licensee systems to distinguish between atmospheric conditions and interference caused by prospective unlicensed systems), spectrum measurements and monitoring (such as signal availability, latency, and mean-time-to-repair requirements), mission-criticality, typical height above average terrain (HAAT), line-of-sight interference vulnerability, and emergency preparedness prior to the potential introduction of new services.

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[4] For reference, basic spectrum management principles, as taught by the United States Telecommunications Training Institute (USTTI), are summarized as follows:

"Radio Frequency Spectrum Management Course. The course addresses national spectrum management architectures, strategic spectrum planning, frequency assignment and licensing and spectrum monitoring, measuring and enforcement. Best practices for spectrum management will be covered. Sessions include engineering analysis, electromagnetic compatibility, spectrum measurements and monitoring, and technical standards. Computerized and automated spectrum management processes are discussed. Special attention is given to radio services of greatest interest, including land mobile and satellite communications. Visits to a variety of wireless service providers are included.

Disaster Communications Planning. The course is designed to help spectrum managers those involved in emergency and disaster communications develop plans and systems that can be implemented before, during and after natural and manmade disasters which may be disrupted.

Please contact USTTI directly for additional information on these and other class offerings at the following email address, train@ustti.org or visit their website, www.ustti.org" See:
https://www.ntia.doc.gov/spectrumtraining/osm-spectrum-management-training-classes

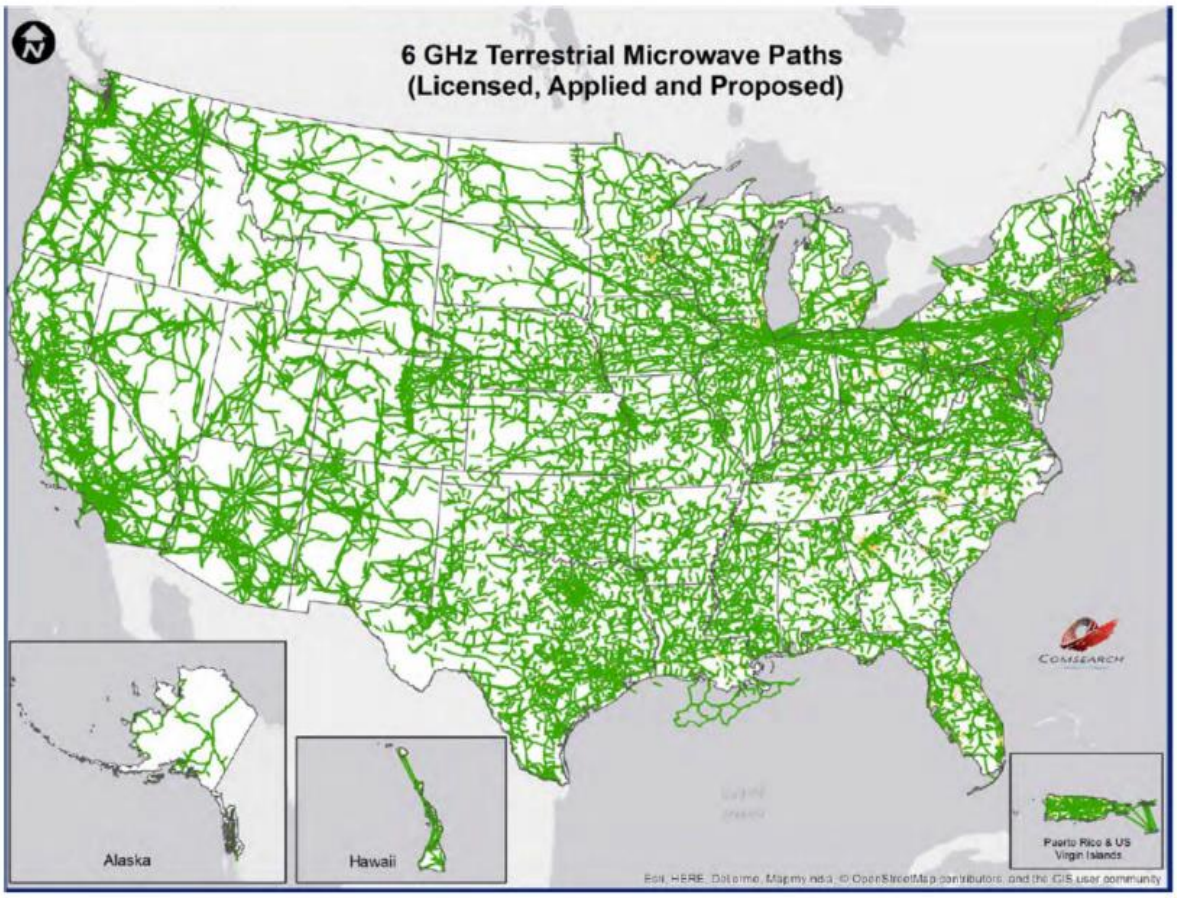
Mission-Criticality: It appears key to confirm that the licensed, incumbent 6 GHz services in operation carry traffic that is heavily skewed towards supporting high signal availability, low-latency, mission-critical networks in the United States. A fundamental starting point for conducting a spectrum management analysis for the proposed introduction of new, intensively deployed systems into an environment is to assess the location and activity status and technical and quality control and operational standards of any existing, mission-critical, primary licensed incumbent systems. The data in Table 1 below, as culled from a June 27, 2019, ULS database review, appears to show that the vast majority of licensed systems are mission-critical. According to the FCC's ULS database, there are 47,025 active call signs in the 6GHz band, representing well over 100,000 links. The three (3) largest service blocks account for 41,667 of those call signs are as follows:

Table 1- Predominant 6 GHz Uses

Service Designation	Number of Call Signs	Use examples
CF (Common Carrier Fixed Point-to-Point Microwave)	16,080	Mobile and landline network infrastructure, and also utility infrastructure. AT&T reports that: • it holds 8,138 licenses in the 6 GHz FS bands supporting backhaul for its mobile networks, as well as telecommunications links for its landline assets; and • it plans to build a 6 GHz network to support FirstNet, the national first responder network.
MG (Microwave Industrial Business Pool)	13,419	Utility Safety and Operations.
MW (Microwave Public Safety Pool)	12,168	Law enforcement and highway safety (examples: Virginia State Police; New Jersey Turnpike Authority).

A national map depicting the incumbent 6 GHz deployments shows relatively dense coverage along most major highways and into most major and secondary metropolitan areas.

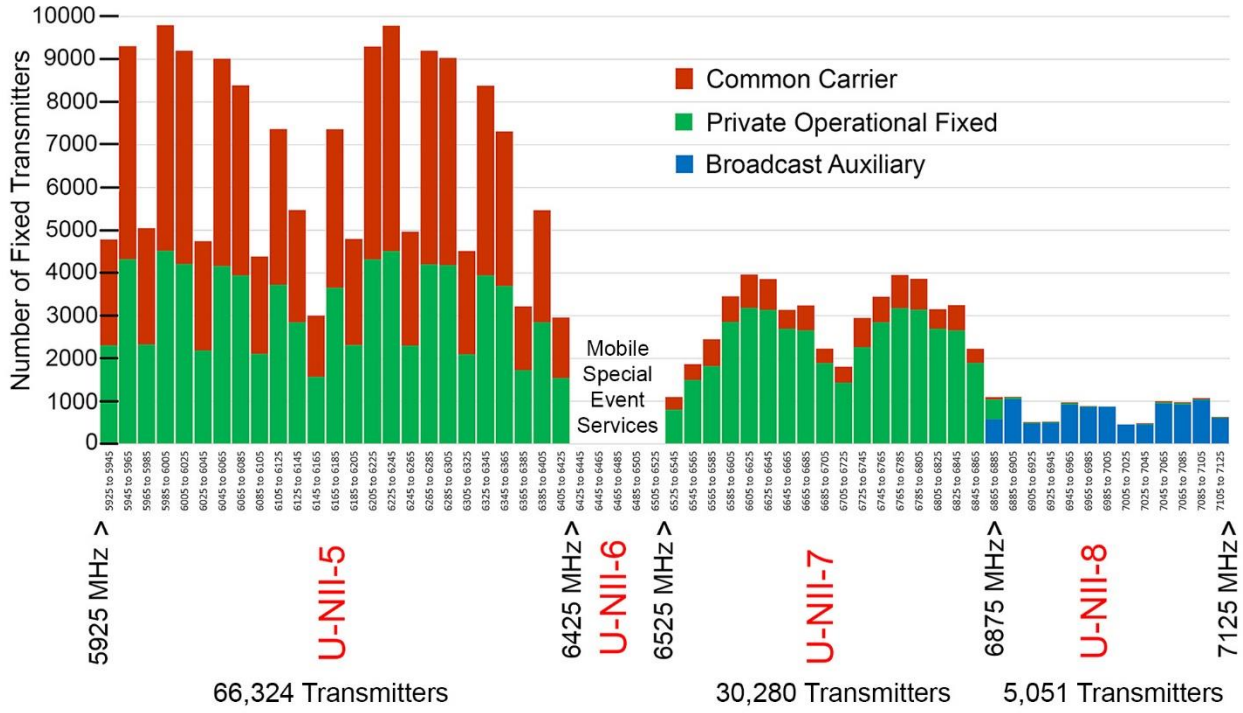
Map 1 – 6GHz Networks Nationwide



Source: Comsearch as cited by AT&T, March 16, 2018, ET Docket 18-295 & GN Docket 17-183.

Another way to understand 6 GHz deployment densities nationwide is illustrated in the following chart.

Chart 1 - 6GHz Usage by Channelization



Source: NSMA Comments, February 15, 2019

Existing Licensed 6 GHz Frequency Allocations:

> 5.925-6.425 GHz: Used by the fixed point to point (Part 101) and fixed satellite (uplink) (Part 25) services.
>
> 6.425-6.525 GHz: Broadcast Auxiliary Service and Cable TV Relay mobile applications (Parts 74, 78 and 101).
>
> 6.525-6.875 GHz: Used exclusively by fixed point to point service (Part 101).
>
> 6.875-7.125 GHz: Primarily serves the Broadcast Auxiliary Service and the Cable TV Relay ("STL") Service (Parts 74, 78 and 101).

By most readily accessible data, there appears to be an intense concentration of mission-critical systems in the 6 GHz bands.

Accessible Federally Managed Test Bed

Is there ready access to the technical criteria by which all these mission-critical systems operate in relation to unlicensed systems deployment in order to sufficiently assess any potential vulnerability to interference? Is there a federally managed test bed location whereby typical 6 GHz mission-critical incumbent systems can be deployed and then 'pressure tested' by the introduction of intensively deployed unlicensed systems of the type contemplated in the NPRM? What are the results of such studies as understood by traditional spectrum management interference assessments? Once that information and those test bed studies can be made available, the ability to make essential decisions about the safety of some of the nation's most mission-critical networks will be greatly enhanced.

Summary

It is critical for the FCC to assess the extent to which current operations in the 6 GHz band support mission-critical services, and the operational and network growth criteria for those services, as a fundamental starting point for assessing the feasibility of introducing additional services into the band. Such an assessment should take the form of either an FCC Fixed Service Database enhancement, or an audit or a functionally equivalent official study finding. Additionally, any prospective deployment of unlicensed services in the 6 GHz band should be carefully assessed under realistic conditions at a test-bed accessible to incumbent licensees. This *ex parte* filing supplements the NSMA comments already on file in this proceeding.

Respectfully submitted,

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